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09/370,361	08/09/1999	KAMILO FEHER	A-66732-1/RM	8010

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EXAMINER
LIU, SHUWANG

ART UNIT	PAPER NUMBER
2634	

DATE MAILED: 01/24/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/370,361	FEHER, KAMILO	
	Examiner	Art Unit	
	Shuwang Liu	2634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 August 0999* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10 and 14-20* is/are rejected.

7)☒ Claim(s) *11-13* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *28 February 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *4 and 5* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Specification

1. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

2. The abstract of the disclosure is objected to because of (1) using phrase "disclosed", (2) exceeding 250 words, and (3) lacking sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

Correction is required. See MPEP § 608.01(b).

Claim Objections

3. Claims 8, 9, 11, 12 and 13 are objected to because of the following informalities:

(1) regarding claims 8, 9 and 11-13, change "in phase", for example, in line 6 of claim 8, line 7 of claim 9, to - -in-phase- -; and

(2) regarding claims 9 and 14-19, change "a input port" to - -an input port- -, for example, line 2 of claim 9.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 3 and 10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 3 recites the limitation "said bit rate agile signal" " in lines 4-5. There is insufficient antecedent basis for this limitation in the claim.

Claim 10 recites the limitation "the I and /or Q channels" " in line 11. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 16,17 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Feher (US 5,491,457, see IDS, #4).

As shown in figures 3A and 3B, Feher discloses:

(1) regarding claim 16:

A structure comprising:

an input port (102) for receiving baseband signals;

a baseband signal processing network (103) for receiving said baseband signals and providing more than two state cross-correlated filtered in-phase and quadrature-phase baseband signals (column 6, line 1-column 7, line 4);

a Quadrature Modulator serving to quadrature modulate said cross-correlated filtered in-phase and quadrature-phase baseband signals; and

a transmit amplifier (NLA) to provide said quadrature modulated signal to the transmission medium.

(2) regarding claim 17:

A structure comprising:

an input port (102) for receiving a plurality of baseband signals;

a baseband signal processing network (103) for receiving said plurality of baseband signals and providing cross-correlated filtered in-phase and quadrature-phase baseband signals to two or more quadrature modulators for quadrature modulation;

a set of two or more transmit amplifiers (133I and 133Q) to amplify and provide said quadrature modulated signals for RF combining; and

a combiner (135) device for RF combining of said quadrature modulated amplified signals.

(3) regarding claim 20:

A structure comprising:

a signal processing network (103) for receiving and splitting signals and for providing cascaded Time Constrained Signal (TCS) response and Long Response(LR) filtered in-phase and quadrature-phase baseband signals to two or more quadrature modulators for quadrature modulation (column 6, line 1-column 7, line 4);

a set of two or more transmit amplifiers (133I and 133Q) to amplify and provide said quadrature modulated amplified RF signals for RF combining; and

a combiner device (135) for RF combining of said quadrature modulated amplified signals.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Feher (US 6,445,749) in view of Higgins et al. (US 5,341,396).

As shown in figures 19 and 20, Feher discloses a communication system and a method, comprising:

(1) regarding claims 1 and 6:

a splitter (102) receiving an input signal and splitting said input signal into a plurality of baseband signal streams;

a baseband signal processing network (1901, 1903, 1904 1905 and 1902 or 2010, 2001, 2011, ...) receiving said plurality of baseband signal streams and generating cross-correlated cascaded processed and filtered in-phase and quadrature-phase baseband signals; and

a quadrature modulator (104 in figure 3A) receiving and quadrature modulating said cross-correlated filtered in-phase and quadrature-phase baseband signals to generate a quadrature modulated output signal.

Feher discloses all of the subject matter as described above except for specifically teaching a bit rate agile communication system as recited in claim 1.

Higgins et al., in the same field of endeavor, teaches a communication system (figure 3) which is a bit rate agile communication system (column 4, lines 28-66 and column 6, lines 15-40).

It would be desirable to have a variable data rate and bandwidth efficient in the communication system. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to include the function of variable data rate as taught by Higgins et al. in the system of Feher in order to allow the system to transmit and receive variable rate. In so doing, the bandwidth efficiency, the security and the power assumption of the system can be improved.

(2) regarding claim 2:

wherein said baseband signal processing network includes a cross-correlator (1901) and at least one bit rate agile cascaded mismatched (ACM) modulator filter (Filter and 2011 in figure 20, and column 6, lines 63-column 7, line 12).

(3) regarding claim 3:

further comprising: a demodulator structure (figures 8 and 15) having at least one bit rate agile (BRA) cascaded mismatched (ACM) demodulation filter (99) which is mis-matched (MM) to said cascaded processed and filtered modulated signal, and operating to demodulate a bit rate agile signal (column 10, lines 54-63, column 4, lines 28-66 and column 6, lines 15-40).

(4) regarding claim 4:

wherein said at least one processed and filtered baseband signal is generated by a plurality of modulator filters (see figures 19 and 20), and at least one bit rate agile (BRA) demodulator filter (99) is used for signal demodulation.

(5) regarding claim 5:

wherein said plurality of modulator filters, and said demodulator filter are connected in either serial, parallel, or a combination of serial and parallel topology (see figures 8, 19 and 20).

(6) regarding claim 7:

As shown in figures 19 and 20, Feher discloses a method, comprising:

receiving (102) a plurality of signal streams;

processing said plurality of signal streams to generate cascaded Time Constrained Signal (TCS) response and Long Response (LR) filtered in-phase and quadrature-phase baseband signals (1905 or Filters in figure 20); and

modulating (104 in figure 3A) said Time Constrained Signal (TCS) response and Long Response (LR) filtered in-phase and quadrature-phase baseband signals to generate a quadrature modulated output signal.

Feher discloses all of the subject matter as described above except for specifically teaching a bit rate agile communication system as recited in claim 1.

Higgins et al., in the same field of endeavor, teaches a communication system (figure 3) which is a bit rate agile communication system (column 4, lines 28-66 and column 6, lines 15-40).

It would be desirable to have a variable data rate and bandwidth efficient in the communication system. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to include the function of variable data rate as taught by Higgins et al. in the system of Feher in order to allow the system to transmit and receive variable rate. In so doing, the bandwidth efficiency, the security and the power assumption of the system can be improved.

(7) regarding claims 8 and 9:

As shown in figures 19 and 20, Feher discloses a structure comprising:

a baseband signal processing circuit (2010, 2001, 2011, ...) receiving one or more baseband signal streams and providing cross-correlated and filtered in-phase and quadrature-phase baseband signals;

a quadrature modulator (104 in figure 3A) serving to quadrature modulate said cross-correlated filtered in-phase and quadrature phase baseband signals;

a transmit amplifier (NLA in figure 3A) to provide said quadrature modulated signal to the transmission medium;

an interface receiver port (94 in figure 8) to provide connection of the said cross-correlated filtered quadrature modulated signal to the demodulator; and

a demodulator structure (98 and 99 in figure 8) to serve for demodulation.

Feher discloses all of the subject matter as described above except for specifically teaching a bit rate agile communication system as recited in claim 1.

Higgins et al., in the same field of endeavor, teaches a communication system (figure 3) which is a bit rate agile communication system (column 4, lines 28-66 and column 6, lines 15-40).

It would be desirable to have a variable data rate and bandwidth efficient in the communication system. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to include the function of variable data rate as taught by Higgins et al. in the system of Feher in order to allow the system to transmit and receive variable rate. In so doing, the bandwidth efficiency, the security and the power assumption of the system can be improved.

10. Claims 14 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Feher (US 5,491,457, see IDS, #4) in view of van Nee (US 6,175,550).

As shown in figure 3A, Feher discloses a structure comprising:

an input port (102) for receiving baseband signals; and

a baseband signal processing network (103 and 104) for receiving baseband and providing cross-correlated perk limited (PL) filtered in-phase and quadrature-phase baseband signals (column 12, lines 1-8 and column 13, lines 46-54).

Feher discloses all of the subject matter as described above except for specifically teaching receiving Orthogonal Frequency Division Multiplexed (OFDM) baseband signals recited in claims 14 and 15.

Van Nee, in the same field of endeavor, teaches a Orthogonal Frequency Division Multiplexed (OFDM) communication system (figures 1-2) with dynamically scale operating parameters (for example, a bit rate).

It is well known that frequency division multiplex is a technology that transmits multiple signals simultaneously over a single transmission path. Each signal travels within its own unique frequency range (carrier), which is modulated by the data. Orthogonal FDM's (OFDM) spread spectrum technique distributes the data over a large number of carriers that are spaced apart at precise frequencies. The benefits of OFDM are high spectral efficiency, resiliency to RF interference, and lower multi-path distortion (column 1, lines 14-35 and column 5, lines 51-57, van Nee). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to employ OFDM as taught by van Nee in the system of Feher in order to provide high spectral efficiency, resiliency to RF interference, and lower multi-path distortion in the communication system.

11. Claims 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Feher (US 5,491,457, see IDS, #4) in view of Rader et al. (US 6,167,099).

As shown in figures 3A and 3B, Feher discloses a structure comprising:

an input port (102) for receiving a plurality of baseband signals;

a baseband signal processing network (103) for receiving said plurality of baseband signals and providing in-phase and quadrature-phase filtered baseband signals to two or more quadrature modulators for quadrature modulation; and

a set of two or more transmit amplifiers (133I and 133Q) to amplify.

Feher discloses all of the subject matter as described above except for specifically teaching providing the quadrature modulated amplified RF signals to an antenna array as recited in claims 18 and 19.

Rader et al., in the same field of endeavor, teaches a communication system (figure 6) which provides the modulated amplified RF signals to an antenna array (628).

It would be desirable to be capable of transmitting and receiving signals having a desired multi-channel wide bandwidth and within a particular frequency range for the communication system using antenna array with a less complex and reducing cost. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use antenna array as taught by Rader et al. in the system of Feher in order to allow the system to have multi-channel transmitter and receiver with a less complex and lower cost.

Allowable Subject Matter

12. Claims 11-13 would be allowable if rewritten to overcome the objections, set forth in this Office action.

Conclusion

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shuwang Liu whose telephone number is (703) 308-9556.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin, can be reached at (703) 305-4714.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(703) 872-9314 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

Shuwang Liu
Primary Examiner

January 15, 2003